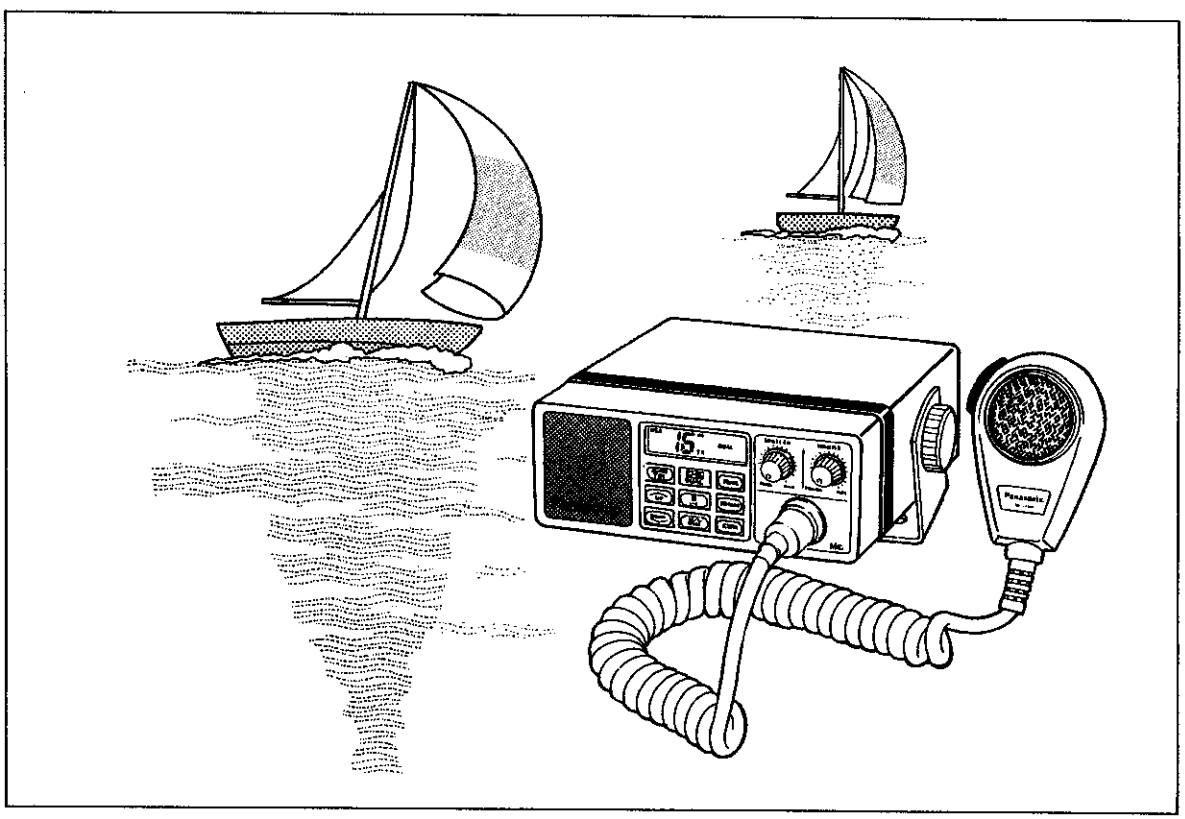
Panasonic

MARINE VHF RADIOTELEPHONE

MODEL NO. **KX-G2200A**

Operating Instructions



Please read before use.

Introduction

Thank you for purchasing the Panasonic Marine VHF Radiotelephone.

The Panasonic model KX-G2200A is FM/VHF radiotelephone transceiver designed to work in the 156.025 to 163.275 MHz frequency range.

Features

- **International, USA, Canadian and Weather channels.**
- **All Memory channels and up to 5-years memory backup.**
- **Dual Watch: channel 16 and another channel.**
- **Triple Watch: channel 16, programmed Triple Watch channel and another channel.**
- **Scanning channel search.**
- **Overriding low output power on specific channel (CH13 and CH67 in USA mode.)**

CAUTION

A valid STATION and OPERATOR'S LICENSE are required BEFORE you can operate a MARINE VHF TRANSCEIVER.

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SPECIFICATIONS

- **General**

Number of Channels;	All International, USA and Canadian channels All Memory channels 10 Weather channels
Temperature range;	−20°C to +50°C (−4°F to +122°F)
Channel spacing;	25 KHz
Power Supply;	13.8 Volts DC (±20%)
Antenna impedance;	50 ohms
Channel memory back up;	5 years with an internal Lithium Battery
Size;	55 mm (H) × 140 mm (W) × 180 mm (D) (2 3/16" (H) × 5 1/2" (W) × 7 1/16" (D))
Weight;	950 g (2.09 lbs.)
Current;	receive standby; 500 mA with full audio output; 1 A transmit low output; 1.5 A high output; 5 A

- **Receiver**

Frequency range;	156.025 - 163.275 MHz
Sensitivity;	less than 0.3 μV for 12 dB SINAD
Squelch sensitivity;	threshold; 0.12 μV
Audio output;	4W at 10% distortion to 4 ohms speaker
Frequency stability;	±0.001%

- **Transmitter**

Frequency range;	156.025 - 157.425 MHz
Maximum Deviation;	±5 KHz
RF output power;	High 25 W, Low 1 W
Spurious & harmonics emission;	spurious emission; 65 dB below carrier harmonics emission; 60 dB below carrier
Audio distortion;	less than 5%
Frequency stability;	±0.001%

OTHER INFORMATION

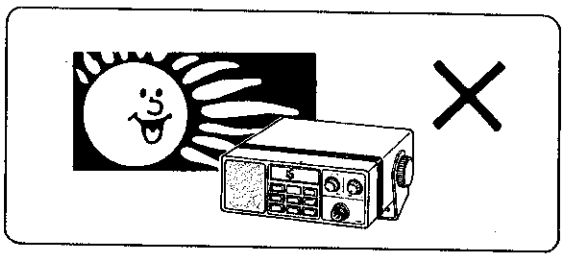
- **Back up battery for memory**

To retain the programmed channels in memory a built-in battery for back up is provided.
If the programmed channels are lost in the memory channel mode after turning your radio on, the built-in battery must be replaced with new one at a Panasonic Servicentre.
NOTE: This special battery is NOT User Replaceable.

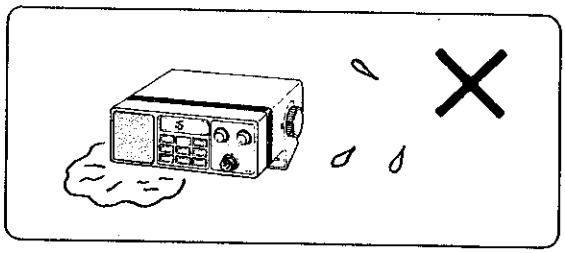
- **Dead Spot**

Transmission and reception may be difficult from some locations, due to outside influences.
If this happens, move to another location if possible.

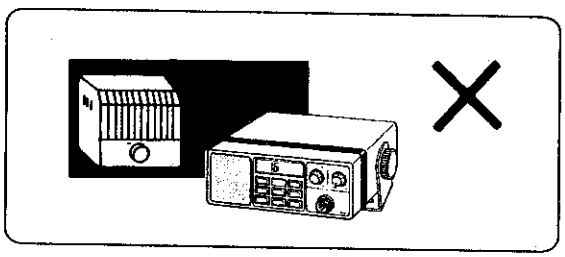
Precautions



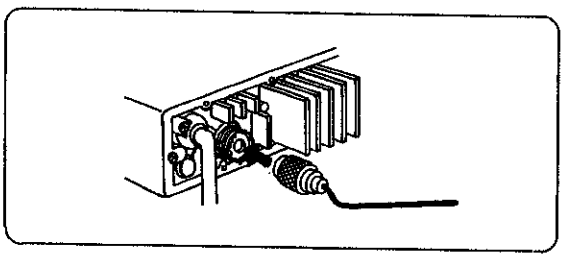
The unit should not be mounted where it will receive direct sunlight for long periods of time.



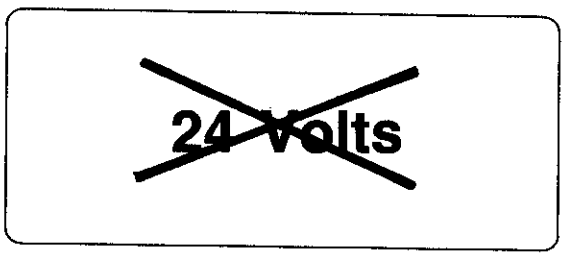
Even though the KX-G2200 was designed for the marine environment, for long, reliable operation, mount the unit where it will not be splashed with water. Also, protect the unit from exposure to salty sea water.



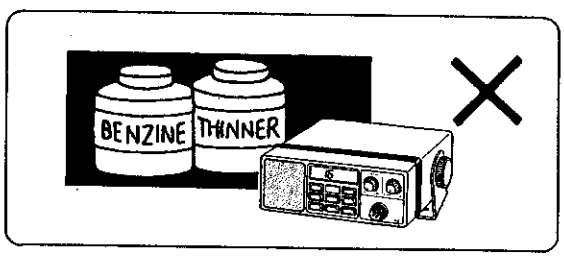
This unit will develop heat in operation. This is a normal condition. Select a mounting location where the unit will be well ventilated.



Only use an antenna designed for VHF Marine radio service. Install it according to the manufacture's instructions and make sure that the connections are secure.



Your Marine VHF radio is designed to operate from a 13.8 volts DC source, ±20% (12V Battery). Power supplies beyond these limits will cause improper operation and damage to the unit.
Check the battery voltage often.



Do not use benzine, thinner, or the like, or any abrasive powder to clean the cabinet. Wipe it with a soft cloth.

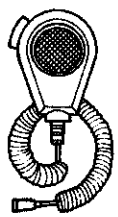
Installation

UNPACKING

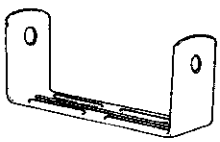
1. Carefully remove the KX-G2200 from the packing carton.
2. Examine the KX-G2200 for signs of shipping damage.
3. Accessory, hardware, cords, etc. are packed with the KX-G2200.
   Make sure you have removed all equipment and parts before discarding the packing material.
4. Notify the your specified authorized servicenter or dealer immediately, stating full details, should any damage be apparent.

ACCESSORIES

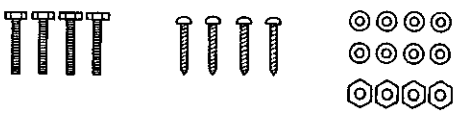
Hand Mic ..... one



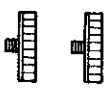
Mounting bracket ..... one



Mounting bolts ..... four
Mounting screws ..... four
Mounting washers ..... eight
Mounting nuts ..... four

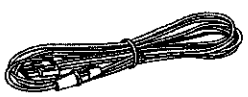


Mounting bracket bolts ..... two



Microphone hanger ..... one
Microphone hanger screws ..... two

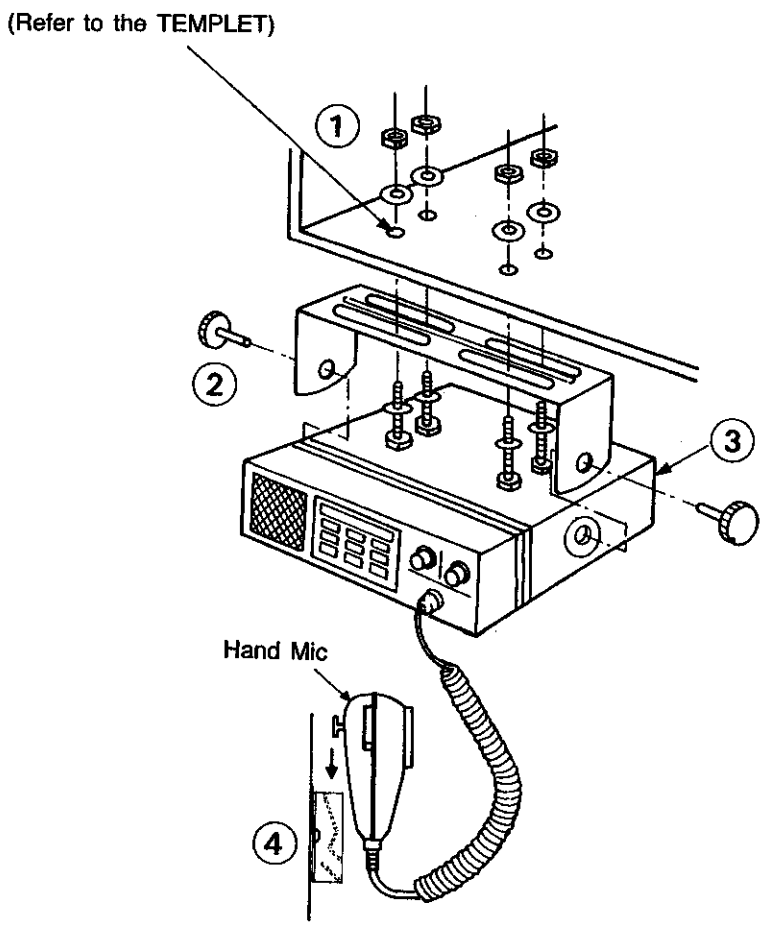
Power cord ..... one

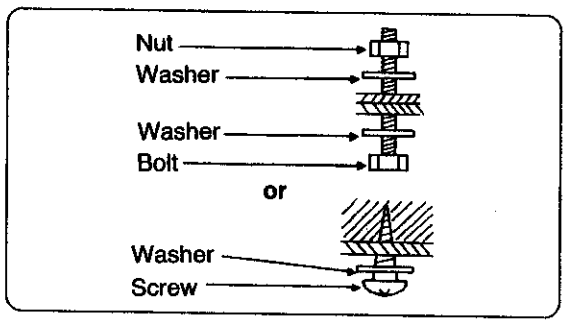


Installation (cont.)

MOUNTING

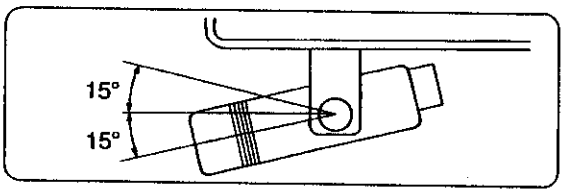
Choose an appropriate location for mounting your marine radiotelephone.
This location should be away from direct sunlight and water spray.



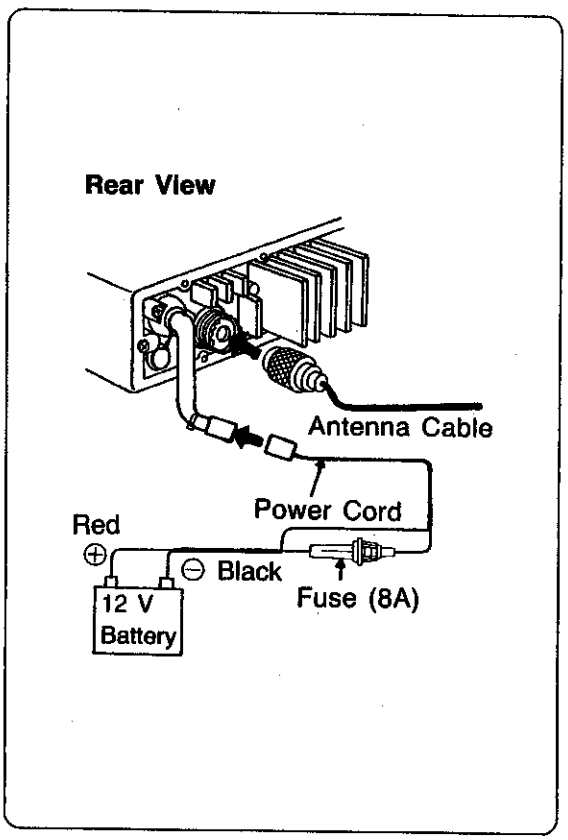


(1) Mount the bracket firmly to the mounting surface using the mounting bolts and nuts, or screws. (Refer to the TEMPLET.)

- To mount to a metal or fiberglass surface, use bolts and nuts.
- To mount to wooden surface, use screws.



(2) Secure the KX-G2200 into the mounted bracket using the two mounting bracket bolts.
Vary installation angle for best visibility.

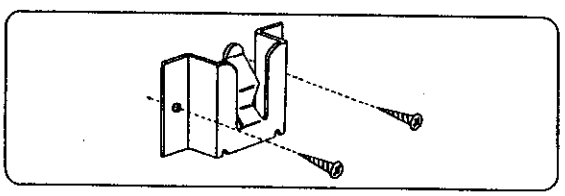


(3) Connect the power cord to the unit, and wire the cord to the vessel's battery by connecting the RED wire to the positive terminal (+), and the BLACK wire to the negative terminal (−).

If you find this cord too short, use the following guide to select the proper guage wire to extend the supplied power cord.

Up to 3 m (10 feet) - #14 AWG
Up to 6 m (20 feet) - #12 AWG
Up to 9 m (30 feet) - #10 AWG
Up to 12 m (40 feet) - #80 AWG

Connect your antenna cable.
Any VHF marine antenna (must have a PL259 connector) of good quality and 50 ohms impedance will suffice, but the use of a gain antenna is recommended. Follow the antenna manufactuer's directions exactly. For an existing antenna, be sure that all connections are corrosion free and that all are firmly seated.



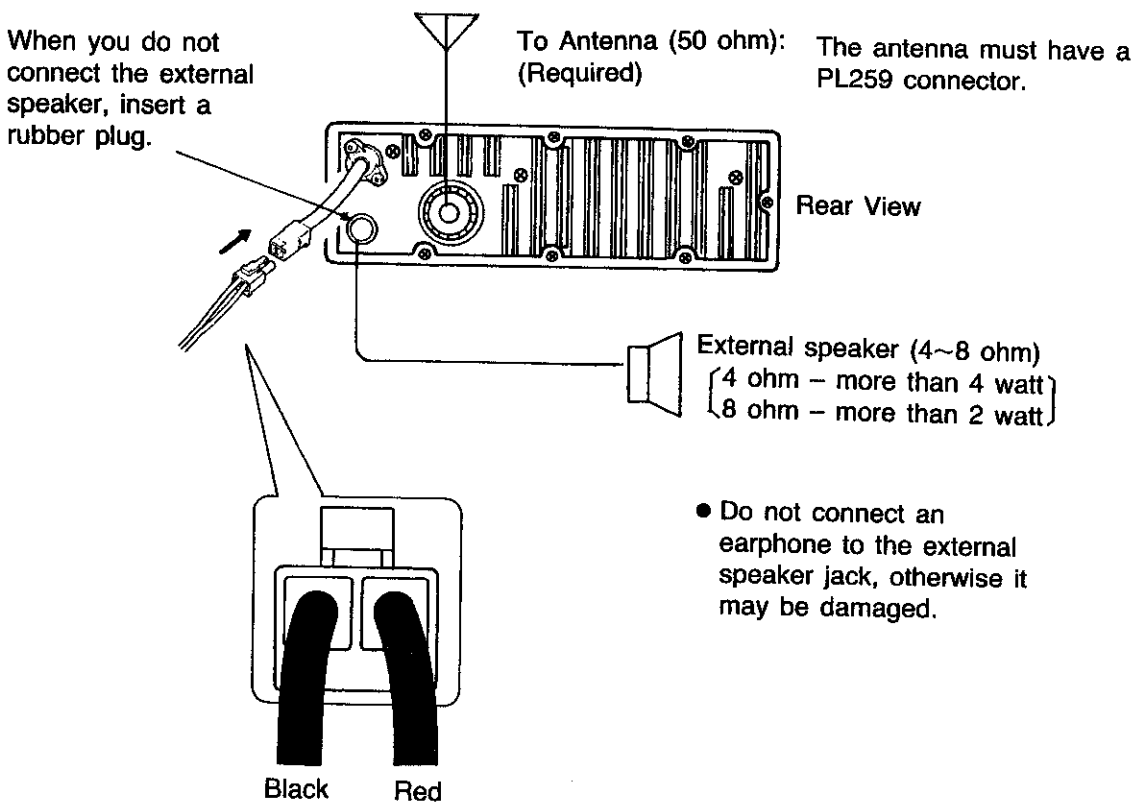
(4) Connect the Hand Mic.

- If you wish to install this unit into a cabinet or console an optional Panasonic flush mounting kit, KX-G20, will be required.

Installation

Connecting Optional Equipments

You may increase the KX-G2200's utility by installing a external horn speaker.

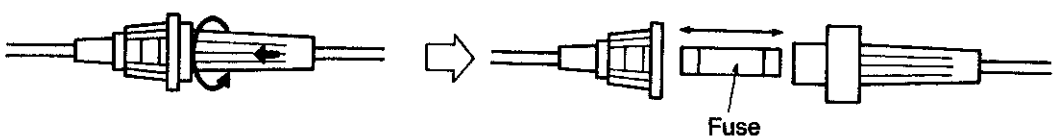

When you do not connect the external speaker, insert a rubber plug.
To Antenna (50 ohm): (Required)
The antenna must have a PL259 connector.
Rear View
External speaker (4~8 ohm)
4 ohm – more than 4 watt
8 ohm – more than 2 watt
Black
Red

- Do not connect an earphone to the external speaker jack, otherwise it may be damaged.

FUSE REPLACEMENT

If the in-line fuse of the power cord has blown, change it with the new one.
If it blows again, have your unit checked.

- **To remove the fuse;**
  Press the fuse holder and while keeping it pushed in, turn it as shown.



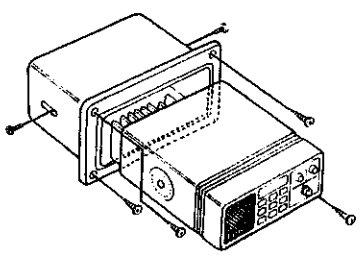
- **To install the fuse;**
  Reverse the above procedure.
  Use a fuse (8 A).

ACCESSORY ORDER INFORMATION

Replacement parts and accessories are available through your local authorized parts ditributor.

Part No.	Description	Colour
KX-G20	Flush Mounting Kit	Black

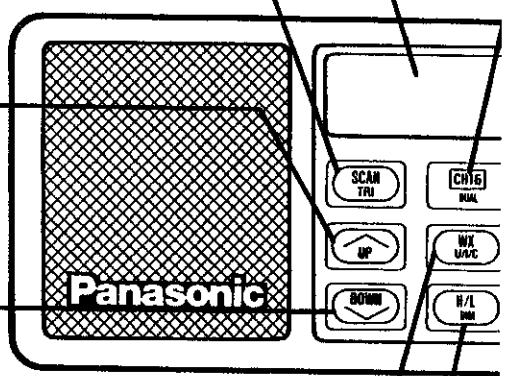
Installation with KX-G20



For futher details, see the instructions of KX-G20.

Control Functions

■ The meaning of "( )" is the lower function.
To select this lower function, press the Function button first.



LCD-Liquid Crystal Display

Displays: Operating Channel Transceiver modes

Scan (TRI) Button

Selects: Scan (normal) ┐
Time Scan ┘ ┬ International, USA and Canadian channels
├ WX Channel
└ Memory Channel

(TRI)

Selects: Triple monitor mode which monitors the displayed channel, CH16 and programmed Triple Watch channel.

Channel Up Button

By pressing or holding this button, the operating channel number is increased.

Channel Down Button

By pressing or holding this button the operating channel number is decreased.

WX (U/I/C) Button

Selects: Weather mode.
When activated, weather channels (1-10) may be selected.

(U/I/C)

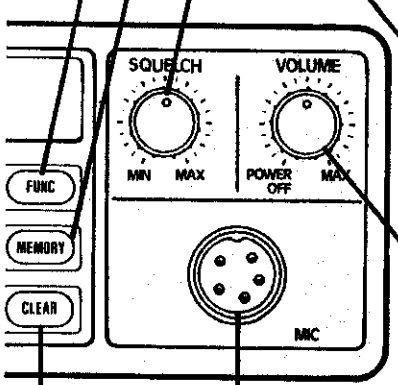
Selects: International (INTL), USA or Canada (CAN) operating frequencies.

H/L (DIM) Button

Selects: Transmit power mode, High - 25 Watt for long distance communication
Low - 1 Watt for local communication

(DIM)

Turns ON/OFF the LCD light.



CH16 (DUAL) Button
Selects: CH16 immediately.
(DUAL)
Selects: Dual monitor mode which monitors the displayed channel and CH16.

Function Button
Is used to select all secondary functions.

Memory Button
Selects: Memory mode.
Stores and deletes channels, in memory.

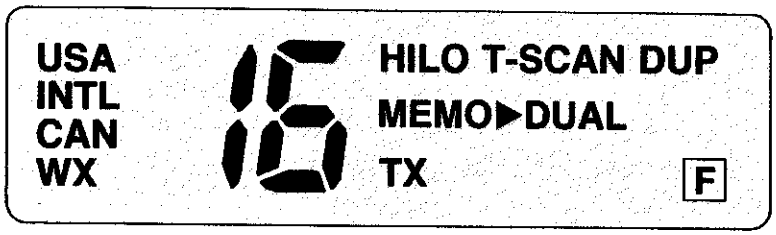
Squelch Control
Adjusts squelch control.

Volume Control/Power Switch
Controls ON/OFF power and receiver volume.

Microphone Connector

Clear Button
Cancels all secondary functions and memory program mode.
It will not cancel the U/I/C operation modes.

LCD (Liquid Crystal Display)



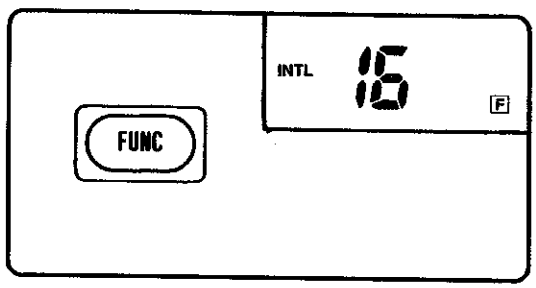
USA	Shows USA mode.
INTL	Shows International mode.
CAN	Shows Canadian mode.
WX	Shows Weather mode.
Channel Display	Displays the channel in use.
HI	Shows the High Power (25 Watt) mode.
LO	Shows the Low Power (1 Watt) mode.
SCAN	Shows unit is in Channel Scan mode.
T-SCAN	Shows unit is in the Time-Scan mode. Scanning starts again automatically even if a signal exists.
DUP	Shows that the unit is in the Duplex mode.
MEMO	Shows that the unit is in the Memory mode. Only memorized channels are shown.
M	In INTL, CAN, USA and WX modes, shows that the displayed channel has been memorized. It is possible to set or reset the desired channel in Memory.
DUAL	This function allows periodic checking for activity on CH16 while receiving another channel.
TX	Shows that the unit is transmitting.
F	Shows that the Function button has been pressed. For six seconds after pressing the Function Button, the Secondary Functions of each button are available.
– –	Shows that the Channel Memory is empty. (no channels have been memorized.)
▶ DUAL	Shows that the Triple Watch is on.
▶	Shows that the displayed channel is on program of Triple Watch channel.

How to Use Double Function Buttons

CH16	Press **CH16 (DUAL)** to select upper function (e.g. --- CH16).
DUAL	Press **FUNC** then **CH16 (DUAL)** to select lower function (e.g. --- DUAL).

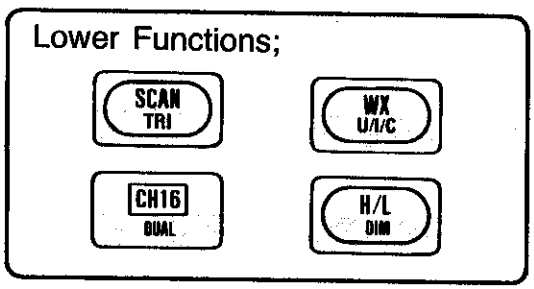
HOW TO USE LOWER FUNCTION

1



SELECT LOWER FUNCTION
Press **FUNC** to select lower function.
"F" will flash for approximately six seconds.
The lower function can be accessed during this period.

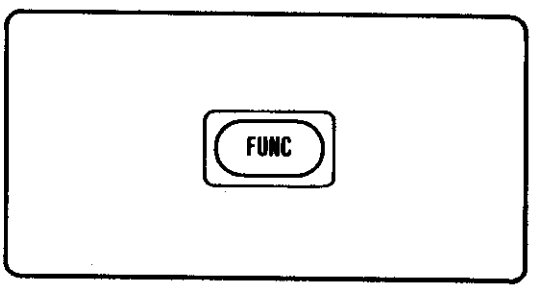
2



SELECT THE DESIRED DOUBLE FUNCTION BUTTON
Press the desired double function button within this period.

HOW TO EXIT FROM LOWER FUNCTION

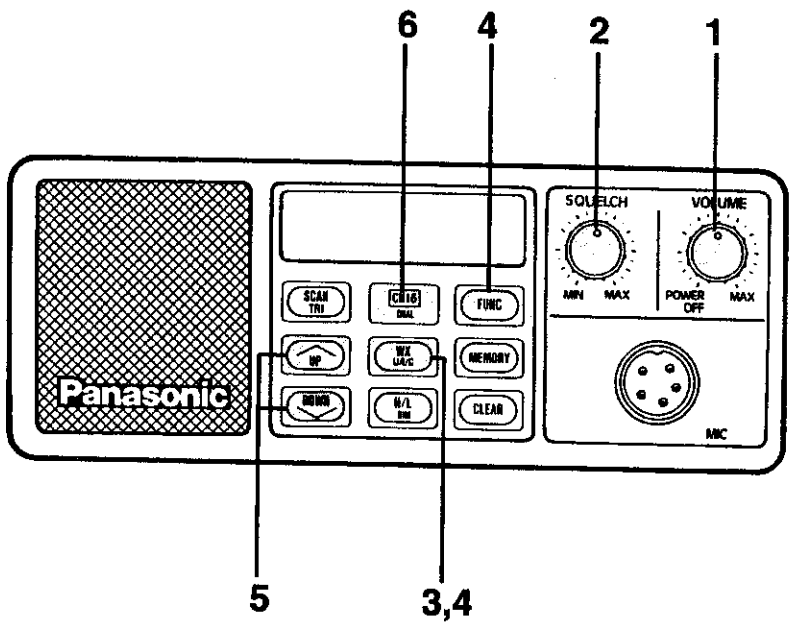
1



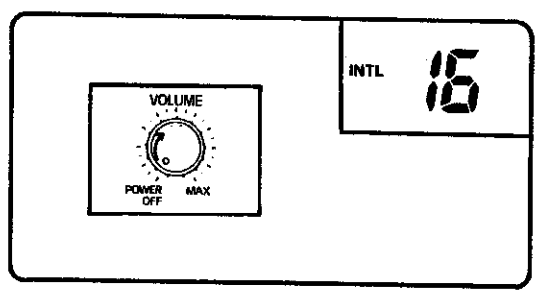
EXIT THE DOUBLE FUNCTION
Press **FUNC** to exit the lower function access without waiting for six seconds.

Receiving

IMPORTANT:
Whenever your marine radio is turned on, keep the receiver turned to the calling distress frequency (CH16).
This listening watch must be maintained at all times the station is in operation (when you are not actually communicating), priority is given when selecting CH16.



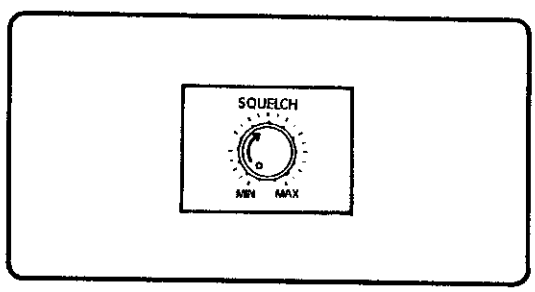
1



POWER ON AND ADJUST VOLUME
Turn the **POWER SWITCH** to the right and adjust the **VOLUME CONTROL** for comfortable listening level.

- Make sure "INTL" appears on the display (International mode).

2



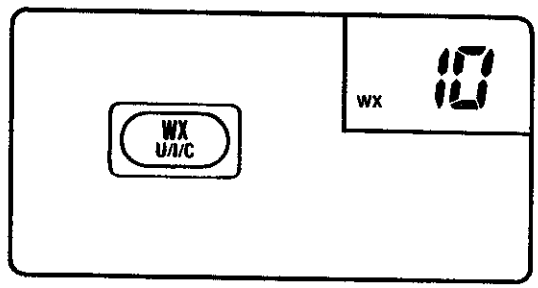
ADJUST SQUELCH
Adjust the **SQUELCH CONTROL** until the background noise disappears.

CAUTION

Turning the **SQUELCH CONTROL** too far clockwise may mute weak transmissions.

HOW TO SELECT THE DESIRED MODE

3

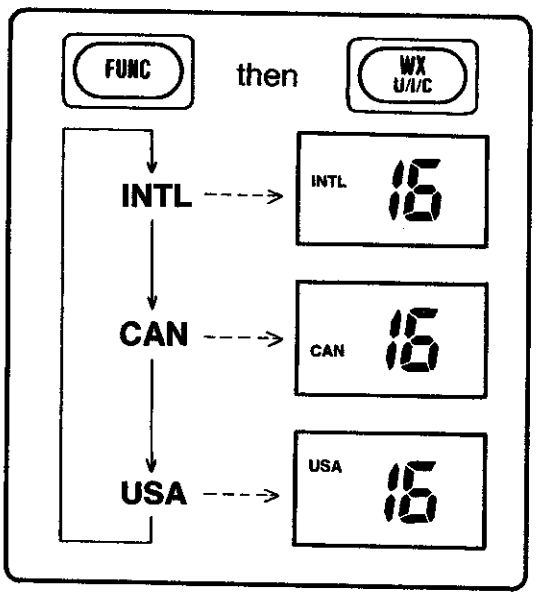


SELECT WEATHER MODE

(1) Press **WX (U/I/C)** to select Weather mode.
- "WX" is displayed.

(2) Press **CLEAR** to exit Weather mode then go to INTL, CAN or USA mode.

4



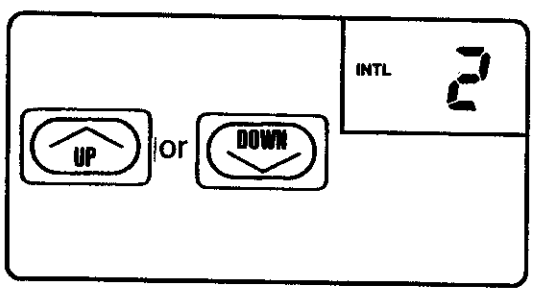
SELECT INTL, CAN OR USA MODE

By pressing (**FUNC** then **WX (U/I/C)**), mode rotates as follows.

- "INTL" is displayed.
- "CAN" is displayed.
- "USA" is displayed.

HOW TO SELECT THE DESIRED CHANNEL

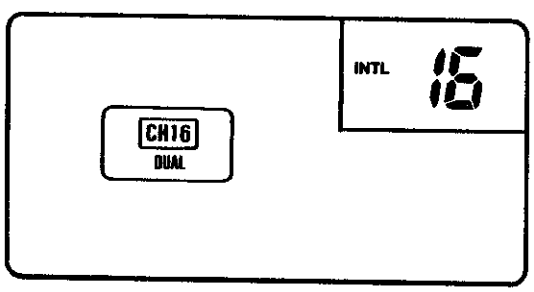
5



SELECT THE DESIRED CHANNEL

Press **UP** or **DOWN** to select a channel number of INTL, USA, CAN or WX mode.
- A channel number is displayed.

6

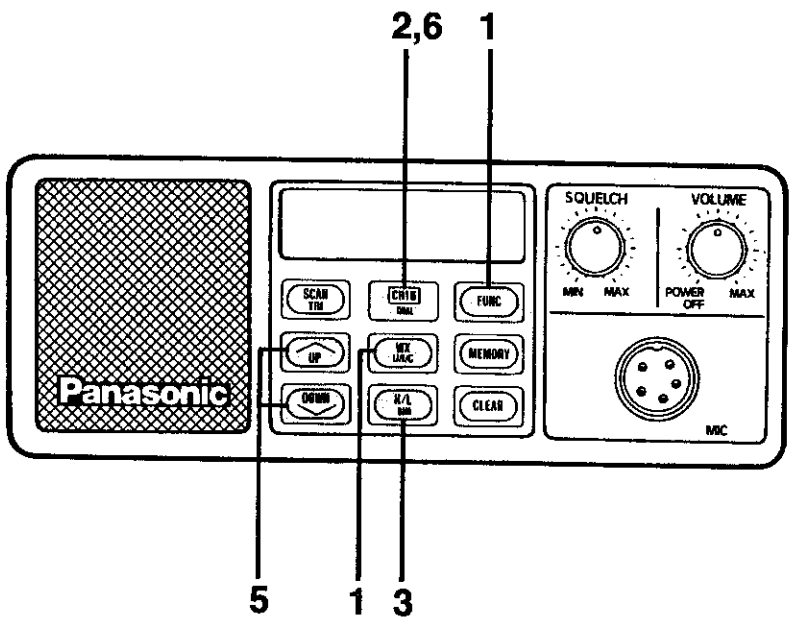


SELECT CHANNEL 16

Press **CH16 (DUAL)** to select CH16 when you are in any mode.
- "16" is displayed.

Transmitting

CH16 is used for emergency and calling purposes only. When contact is established on CH16, you must switch to an appropriate working channel for further communication.



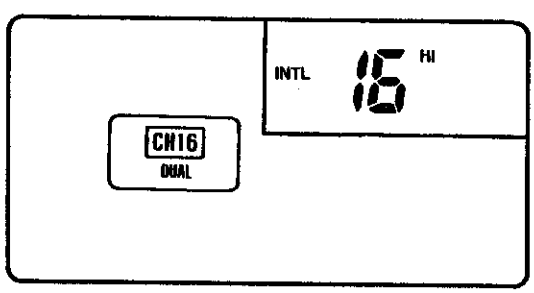
1

Example;

FUNC then WX U/A/C

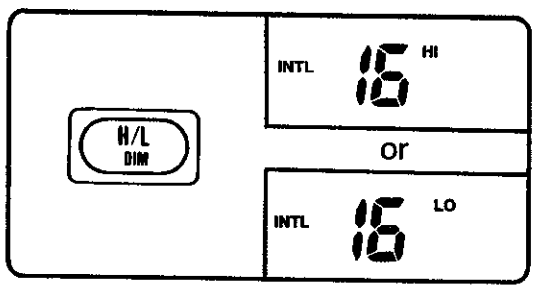
SELECT THE DESIRED MODE
Select the desired operating mode.
(See P.14 HOW TO SELECT THE DESIRED MODE. Repeat steps 3 and 4)

2



SELECT CALLING CHANNEL (CH16)
Press **CH16 (DUAL)** to monitor and initiate your call.
- "16" is displayed.

3



SELECT TRANSMIT POWER

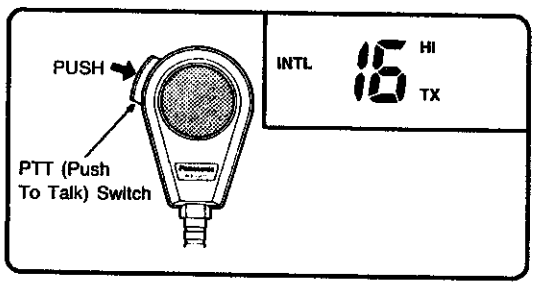
Press **H/L (DIM)** to select the desired output power.

- "HI" or "LO" is displayed.

NOTE

Low power is automatically set on channels 13, 17 and 67 in the USA mode, 15, 17 in the INTL and CAN mode. However, you wish high power especially on channels 13 and 67 in USA mode, hold this button down during transmission.

4



START TALKING

(1) Press **PTT SWITCH** to begin transmitting.
- "TX" is displayed.

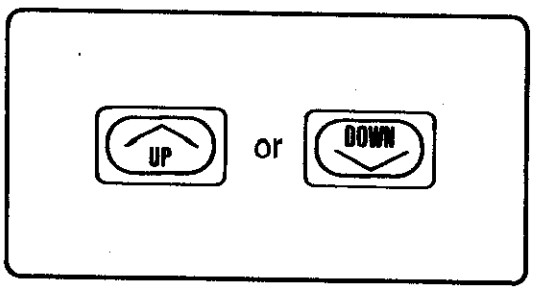
(2) To start talking into the Mic using your normal voice level.

(3) To receive an answer, release **PTT SWITCH**.

NOTE

When the PTT Switch is pressed and the channel number flashes, transmission is prohibited on that particular channel (receive only channel).

5

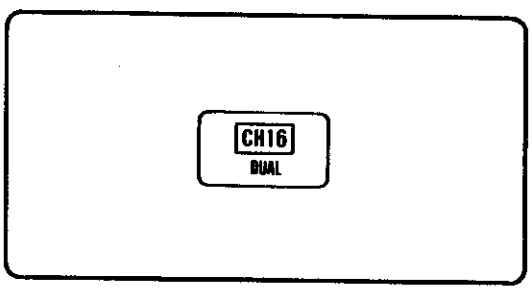


SELECT OPERATING CHANNEL

Press **UP** or **DOWN** to select operating channel.

- After contact is made on the CH16, select the operating channel to communicate with the other party.

6

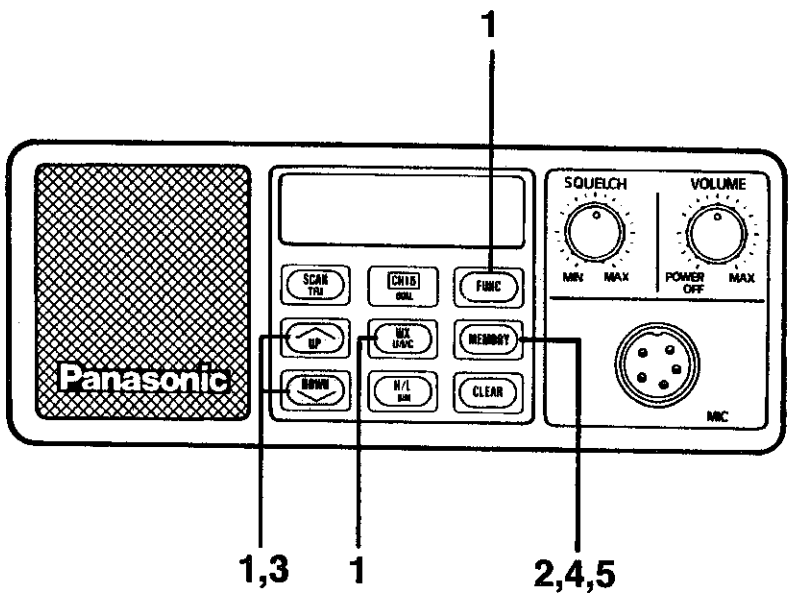


FINISH COMMUNICATION

Press **CH16 (DUAL)** to keep watching on CH16 after finish communication.

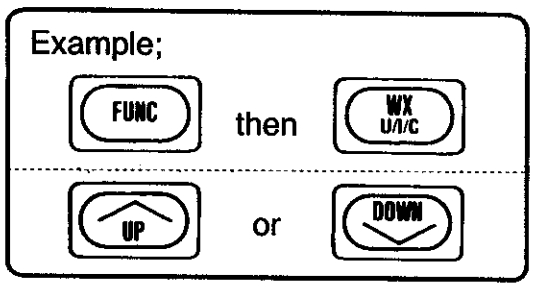
How to Use the Memory Function

You may store all channels which you use often, into memory. These channels can then be selected quickly using **UP** or **DOWN** in the memory mode. Any combination of INTL, USA, CAN and Weather channels can be stored into memory.



STORING A MEMORY CHANNEL

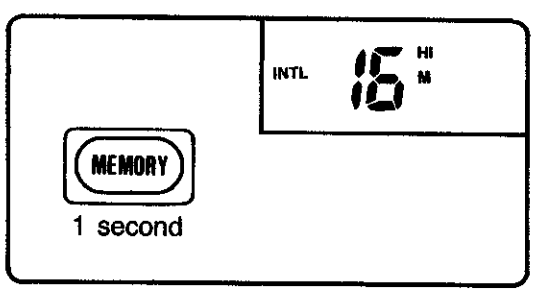
1



SELECT THE DESIRE MODE AND CHANNEL

Select the desired programming channel. (See p.14 HOW TO SELECT DESIRED MODE AND CHANNEL. Repeat steps 3 to 6)

2

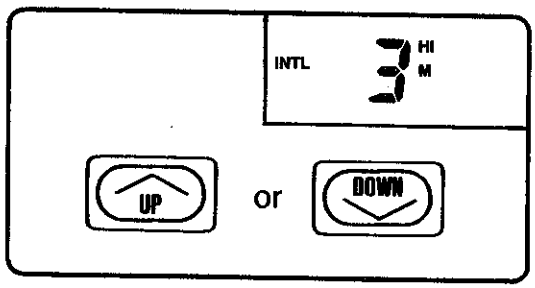


STORE THE CHANNEL

(1) Press **MEMORY** and hold for 1 second.
- "M" is displayed.
- When you select a channel, if an "M" is displayed, it indicates that the channel has been stored into memory.

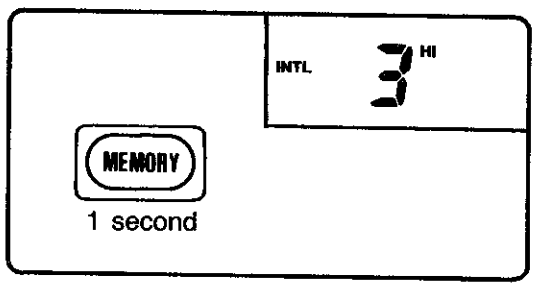
ERASING A MEMORY CHANNEL

3



SELECT THE CHANNEL TO ERASE
Select the channel you wish to erase using **UP** or **DOWN**.
- The channel number is displayed.

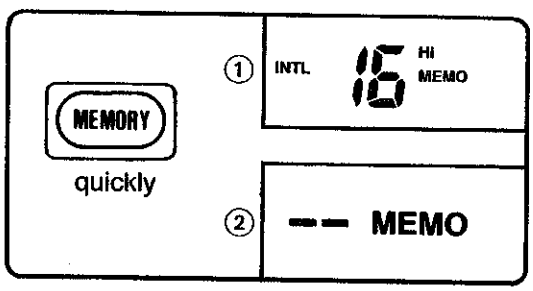
4



PRESS MEMORY BUTTON
Press **MEMORY** and hold for 1 second.
- "M" is disappeared.

SELECTING A MEMORY CHANNEL

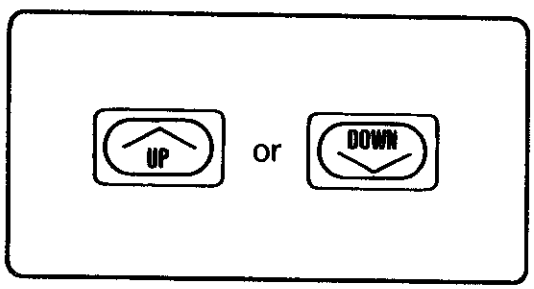
5



SELECT MEMORY MODE
① Press **MEMORY** quickly.
- "MEMO" is displayed to show that it is ready to select a memorized channel.

② If no channels are stored, "– – MEMO" is displayed. (Press **WX (U/I/C), CH16 (DUAL)** or **CLEAR** to exit this mode)

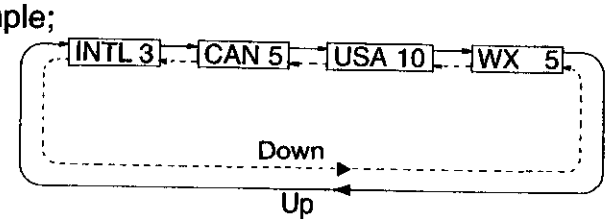
6



SELECT MEMORY CHANNEL
(1) Press **UP** or **DOWN** until the desired memory channel appears.
- The memory channel number is displayed. If you want to erase the memory Channel, press **MEMORY** and hold for 1 second, displayed channel is disappeared then next memory channel is displayed.

(2) The stored channel is displayed in succession as in the following example.

Example;



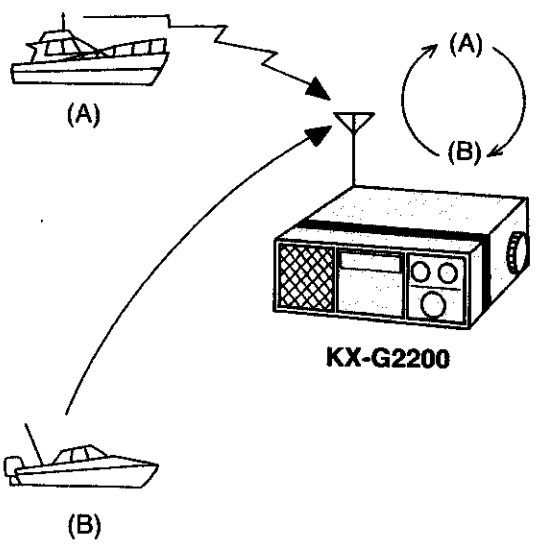
How to Monitor CH16 and Present Channel (Dual Watch)

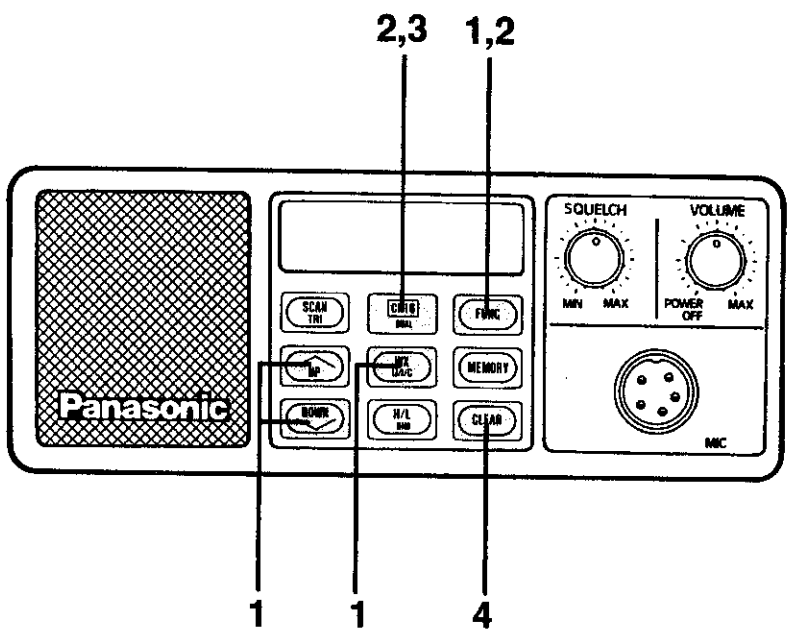
DUAL WATCH: Dual Watch for monitoring emergency CH16 while listening to another channel.

■ **DUAL WATCH SIMULATION**

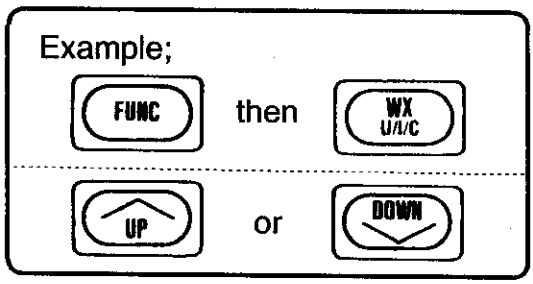
(A) Channel 16
(B) Operating Channel

If a signal appears on CH16, the unit receives on CH16 until the signal disappears.





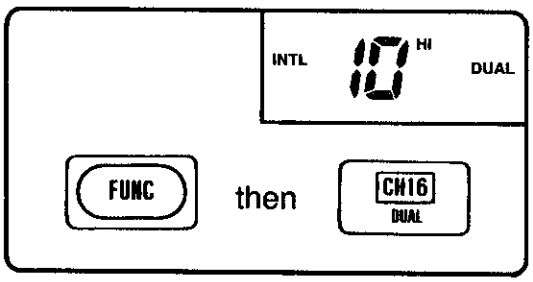
1



SELECT THE DESIRED MODE AND CHANNEL

Select the desired (present) channel.
(See p.14 HOW TO SELECT THE DESIRED MODE AND CHANNEL. Repeat steps 3 to 6)

2

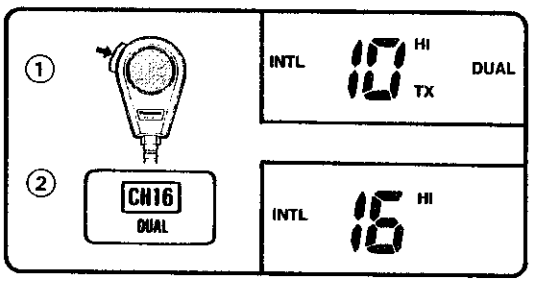


START DUAL WATCH FUNCTION

(1) Press **FUNC** then **CH16 (DUAL)** to start Dual Watch function.
- "DUAL" is displayed.

(2) The unit monitors CH16 every few seconds.

3

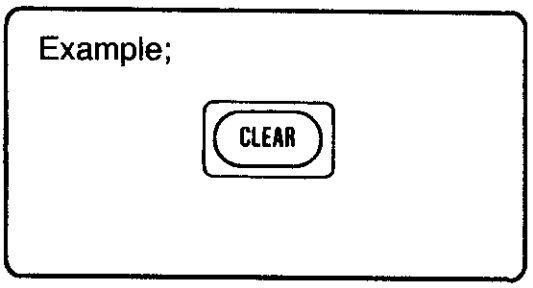


START TALKING

① Press **PTT SWITCH** to transmit on the present channel.
- "TX" is displayed.

② To select CH16, press **CH16 (DUAL)** then press **PTT SWITCH** to transmit.

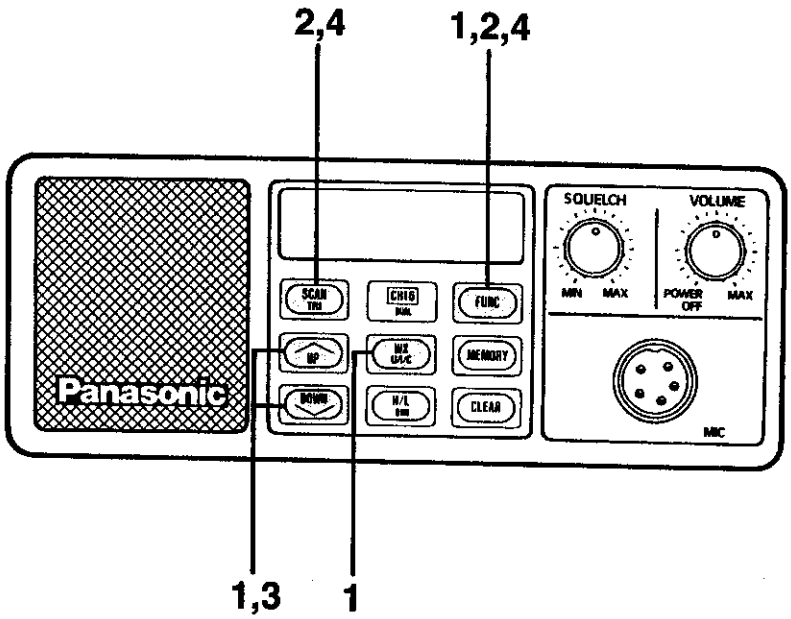
4



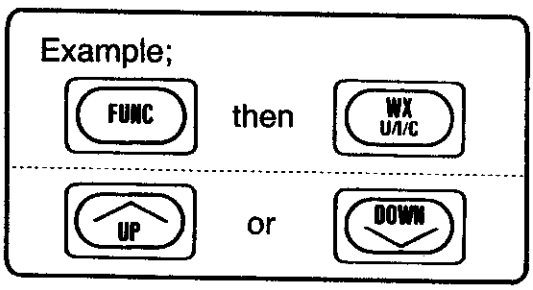
EXIT THIS MODE

Press any buttons you wish to select.
See p.28, ① to ⑥.

How to Program into Memory for Triple Watch



1

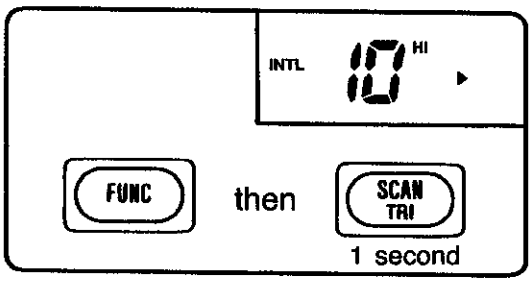


SELECT THE DESIRED MODE AND CHANNEL

Select the desired channel which you wish to store for the Triple Watch.

(See p.14 HOW TO SELECT THE DESIRED MODE AND CHANNEL. Repeat steps 3 to 6)

2

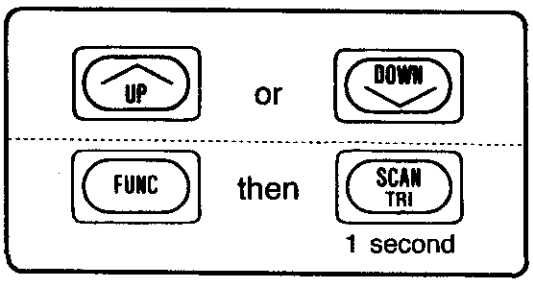


PROGRAM THE TRIPLE WATCH CHANNEL

Press **FUNC** then **SCAN (TRI)** and hold for 1 second.

- You hear a beep then "▶" is displayed. "▶" means the selected channel has been programmed for Triple Watch.

3

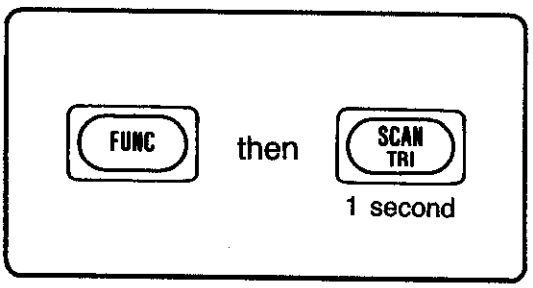


CHANGE THE PROGRAMMED CHANNEL

Select the desired channel to replace the programmed channel then repeat step 2. The displayed channel has been stored and the previously channel has been erased.

ERASING THE PROGRAMMED CHANNEL

4



ERASE THE TRIPLE WATCH CHANNEL

Press **FUNC** then **SCAN (TRI)** and hold for 1 second to erase the displayed channel which is programmed for Triple Watch.

- You hear a beep then "▶" is disappear.

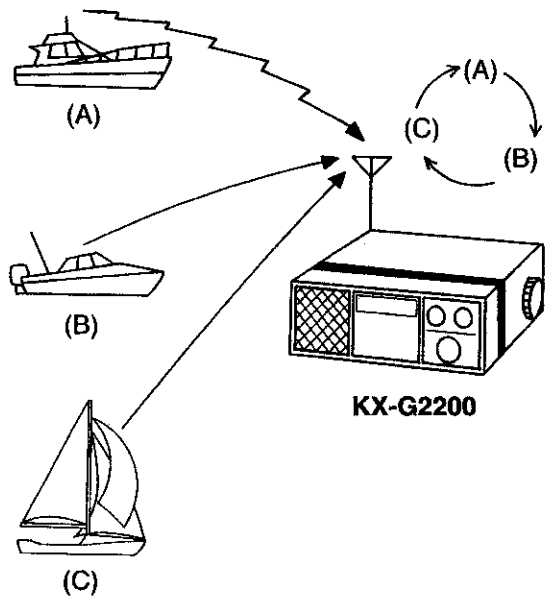
How to Monitor CH16, Present Channel and Programmed Channel (Triple Watch)

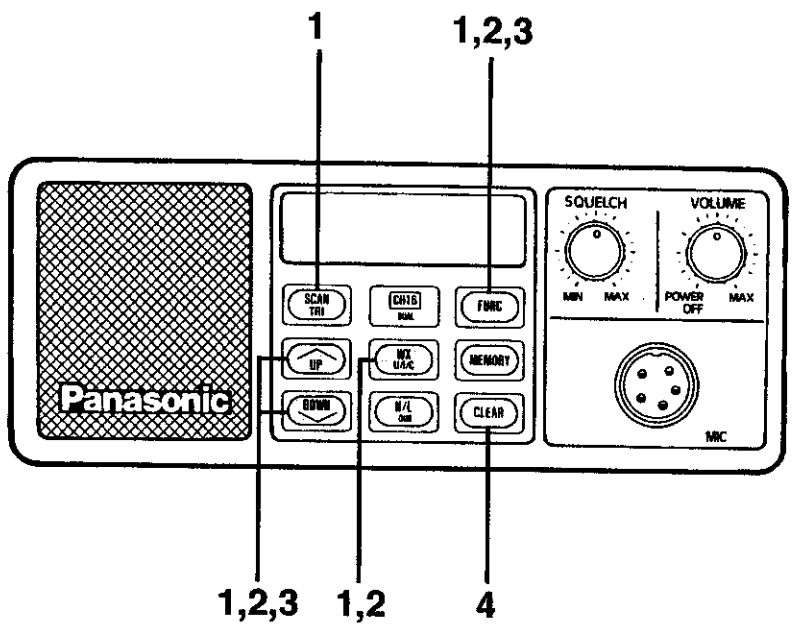
TRIPLE WATCH: Triple Watch for monitoring emergency CH16 and programmed Triple Watch channel while listening to a third channel.

■ **TRIPLE WATCH SIMULATION**

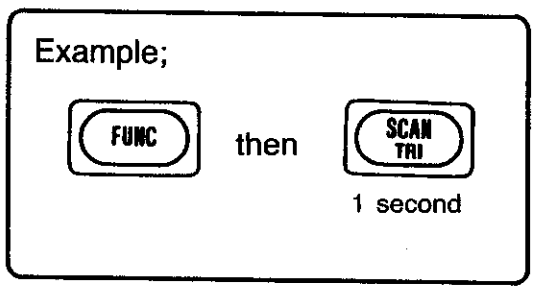
(A) Channel 16
(B) Operating Channel
(C) Programmed Triple Watch channel

If a signal appears on CH16 or programmed Triple Watch channel, the unit receives on CH16 or programmed Triple Watch channel until the signal disappears.





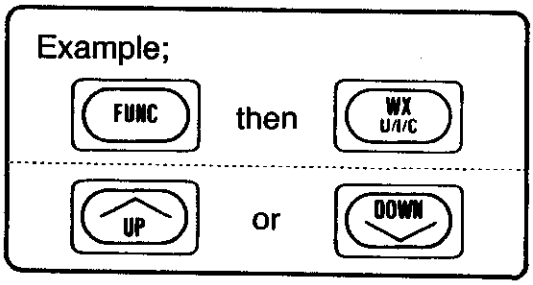
1



PROGRAM THE TRIPLE WATCH CHANNEL

Program the desired channel for monitoring.
(See p.21 HOW TO PROGRAMMED INTO MEMORY FOR TRIPLE WATCH)

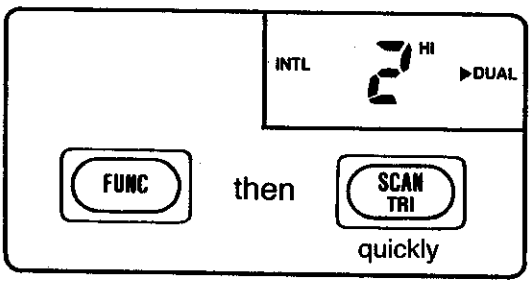
2



SELECT THE DESIRED MODE AND CHANNEL

Select the desired (present) channel.
(See p.14 HOW TO SELECT THE DESIRED MODE AND CHANNEL. Repeat steps 3 to 6)

3

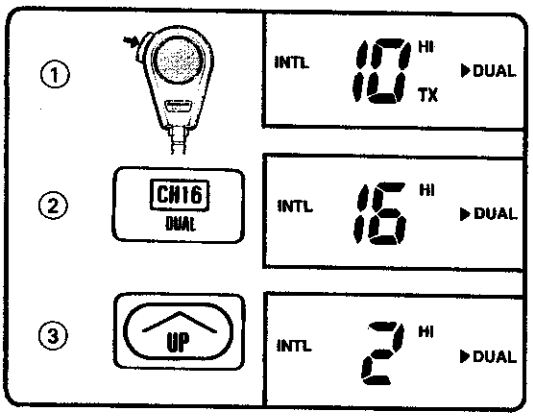


START TRIPLE WATCH FUNCTION

(1) Press **FUNC** then **SCAN (TRI)** quickly.
- After Programmed Triple Watch channel appears on the LCD for 1 second, "▶DUAL" is displayed.

(2) The unit monitors CH16, programmed channel and the present channel.

4



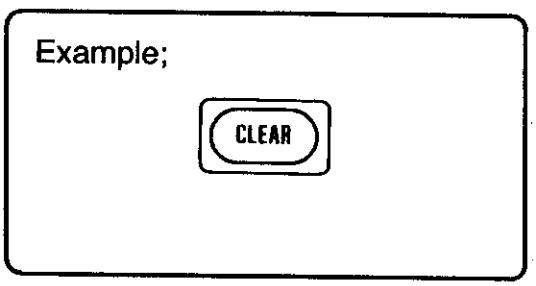
START TALKING

① Press **PTT SWITCH** to transmit on the present channel.
- "TX" is displayed.

② To select CH16, press **CH16 (DUAL)** to transmit.

③ To select programmed channel, press **UP** or **DOWN** to transmit.

4

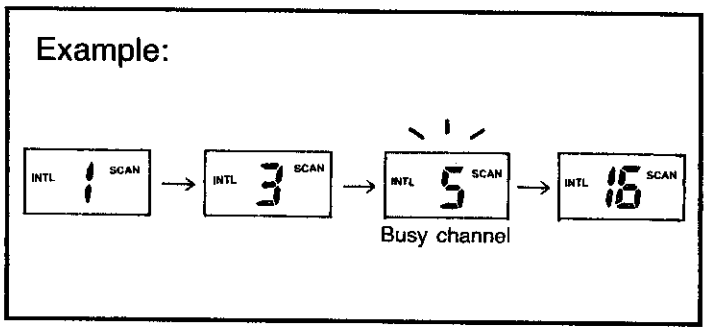


EXIT THIS MODE

Press any buttons you wish to select.
See p.28, ① to ⑥.

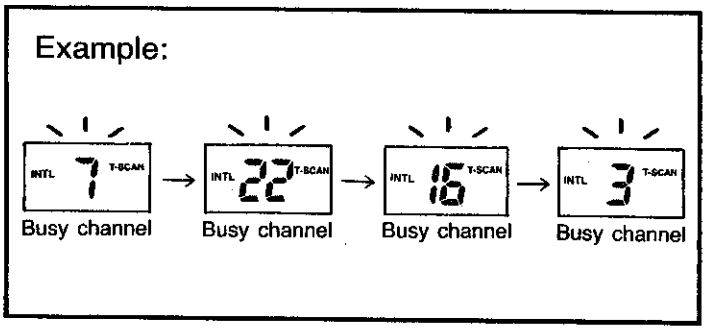
Scan Information

AUTO SCAN



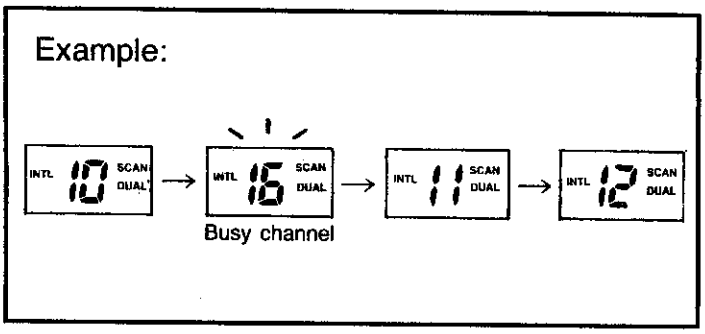
Scans all channel International, USA, Canada and Weather channels.

TIME OUT SCAN



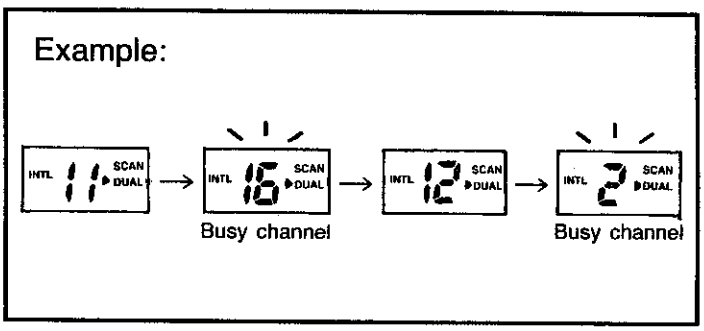
Searching will start from a channel (on which a signal is received) to the next busy channel after a few seconds interval.

DUAL WATCH SCAN



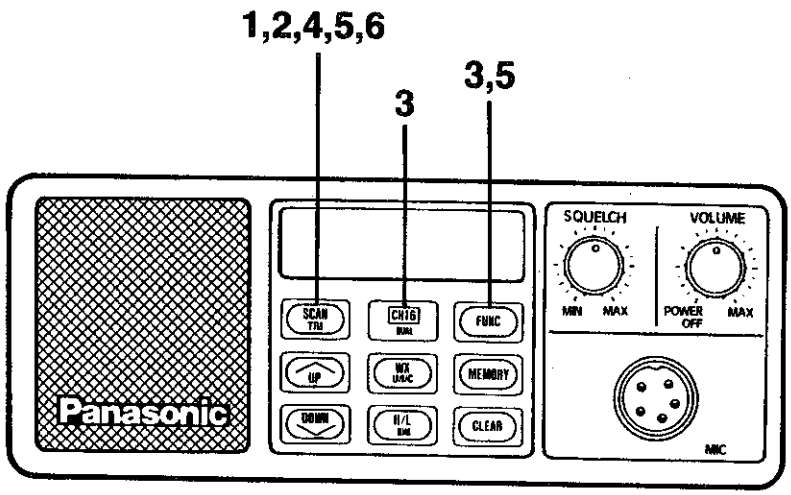
Scans all channels while watching CH16.

TRIPLE WATCH SCAN



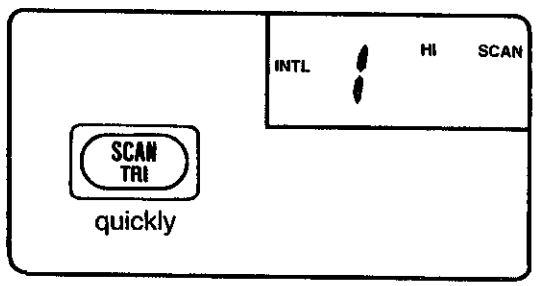
Scans all channels while watching programmed Triple Watch channel and CH16.

Scan Operation



AUTO SCAN

1



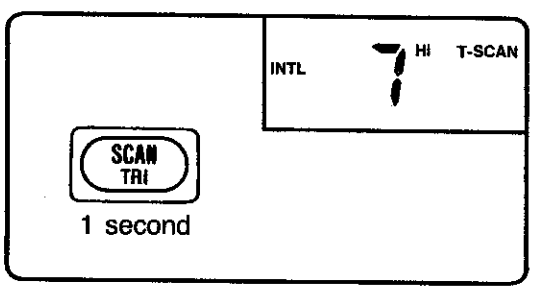
START SCANNING

(1) Press **SCAN (TRI)** quickly.
- "SCAN" is displayed.

(2) The unit will start scanning up from the displayed channel.
(3) Scanning stops at a channel on which the unit receives a signal.
(4) The channel number displayed will flash until the signal disappears.
(5) The voice on the channel can be heard.
(6) Press **SCAN (TRI)** to stop searching. (Refer to p.28)

TIME SCAN

2



START TIME-SCANNING

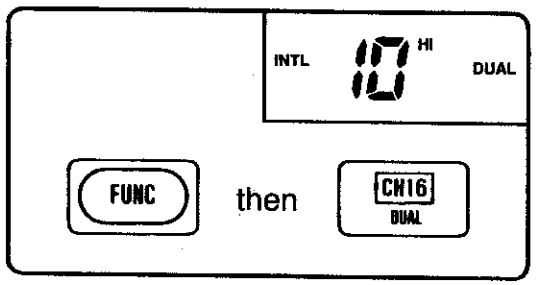
(1) Press **SCAN (TRI)** and hold for 1 second.
- "T-SCAN" is displayed.

(2) Scanning pauses at a channel (on which a signal exits) for a few seconds.
(3) The channel number flashes for that period.
(4) The unit will continue scanning up.
(5) Press **SCAN (TRI)** to stop searching. (Refer to p.28)

Scan Operation (cont.)

DUAL WATCH SCAN

3

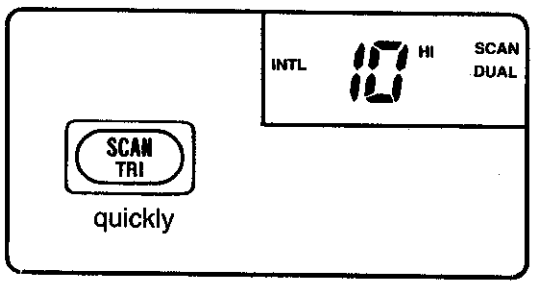


SELECT DUAL WATCH MODE

(1) Press **FUNC** then **CH16 (DUAL)** to monitor CH16 at intervals of a few seconds.
- "DUAL" is displayed.

(2) The unit monitors CH16 and the present channel every few seconds.

4



START SCANNING WITH DUAL WATCH MODE

(1) Press **SCAN (TRI)** quickly.
- "SCAN" is displayed and scanning will start.

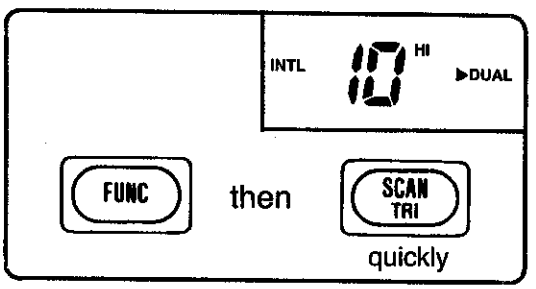
(2) The unit will alternate between CH16 and each channel sequentially scanned.

(3) The scan stops then a signal is received and then the scan resumes after the signal disappears.

(4) When you press **SCAN (TRI)** and hold for 1 second, "T-SCAN" is displayed then scanning will pause at a channel on which a signal is received for a few seconds and then the unit will continue scanning up.

TRIPLE WATCH SCAN

5

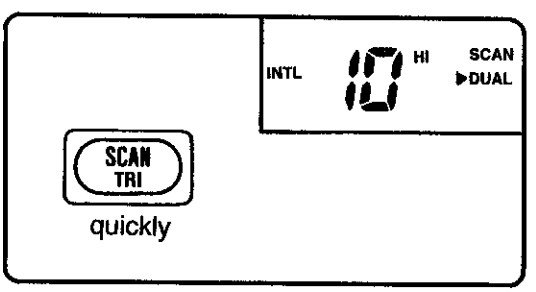


SELECT TRIPLE WATCH MODE

(1) Press **FUNC** then **SCAN (TRI)** quickly.
- "▶DUAL" is displayed.

(2) The unit will monitor CH16 and programmed channel at intervals of a few seconds.

6



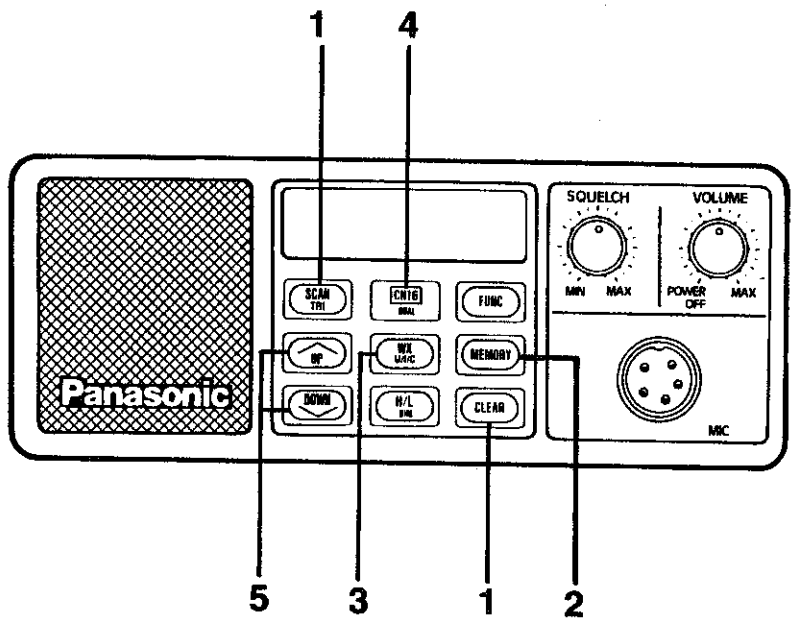
START SCANNING WITH TRIPLE WATCH MODE

(1) Press **SCAN (TRI)** quickly.
- "SCAN" is displayed and scanning will start.

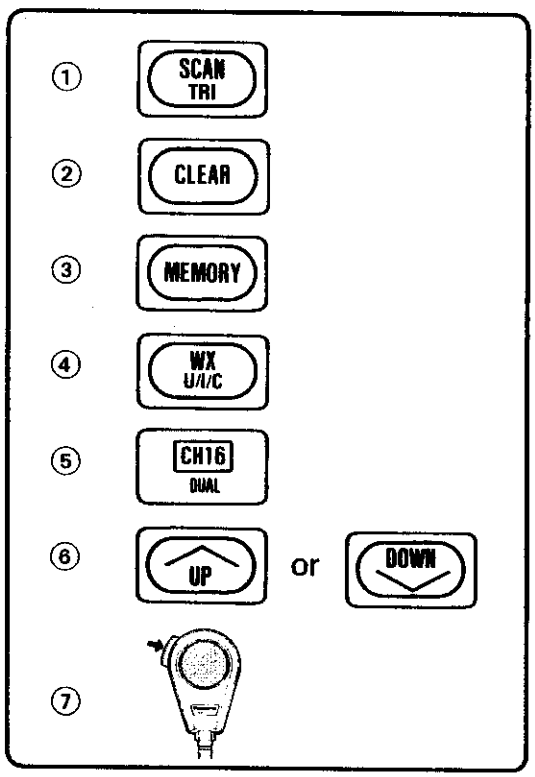
(2) The unit alternates CH16 and programmed channel and each channel sequentially scanned.

(3) The scan stops when a signal is received and then the scan resumes after the signal disappears.

(4) When you press **SCAN (TRI)** and hold for 1 second, "T-SCAN" is displayed then scanning will pause at a channel on which a signal is received for a few seconds and then the unit will continue scanning up.



HOW TO STOP SEARCHING AND ANSWERING A CALL



Select the one button to stop searching.

① Press **SCAN (TRI)** to select the displayed channel.

② Press **CLEAR** to go to USA, INTL or CAN mode.

③ Press **MEMORY** to go to Memory channel mode.

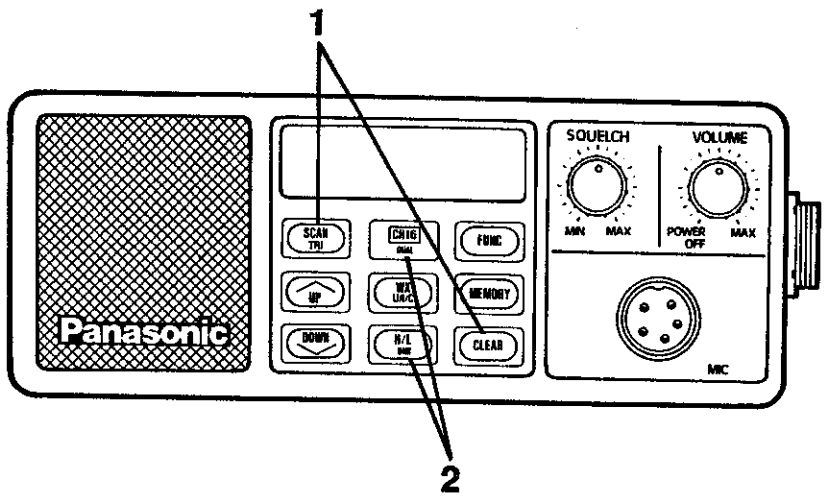
④ Press **WX (U/I/C)** to go to Weather channel mode.

⑤ Press **CH16 (DUAL)** to go to channel 16.

⑥ Press **UP** or **DOWN** to go to desired channel.

⑦ Press **PTT SWITCH** to answer a call on the receiving channel.

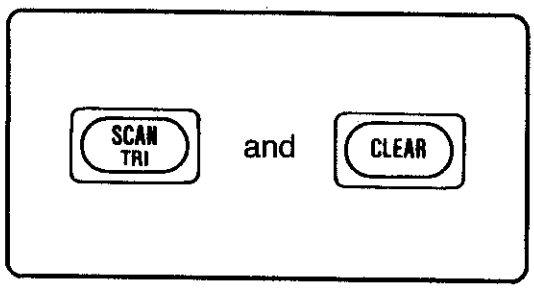
How to Display the Last Channel when turned on



LAST CHANNEL MODE

This mode will store and recall the last channel that was selected before the radio was turned off.

1



MEMORY THE LAST CHANNEL MODE

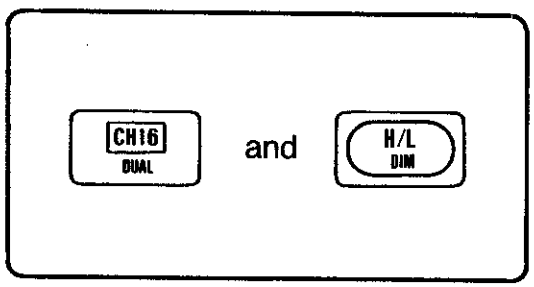
(1) Press **SCAN (TRI)** and **CLEAR** simultaneously while pressing them in turn the radio off.

(2) Verify that the last channel appears on the LCD when the radio is turned on.

CHANNEL 16 RECALL MODE

This mode will recall CH16 each time the radio is turned on.

2



RECALL CHANNEL 16 MODE

(1) Press **DUAL** and **H/L (DIM)** simultaneously while pressing them in turn the radio off.

(2) Verify that CH16 appears on the LCD then the radio is turned on.

Troubleshooting Guide

The following are brief descriptions of common problems caused by sources outside the unit. Should any trouble concerning the actual unit occur, please take the unit directly to an authorized Servicenter for qualified service.

Problem	Cause & Remedy
Unusual difficulty in transmitting or receiving.	● Check the antenna system (broken or shorted antenna cable, corroded or defective connectors.) ● Battery voltage may be low.
No display and no sound is heard when the Power Switch is turned on.	● Battery voltage may be low or dead. ● Power cord may be broken or shorted. ● Fuse or fuse holder located in the power cable may be corroded or unlocked.
"TX" is not displayed when the PTT Switch is pressed in transmitting mode.	● Microphone cord may be broken or damaged.
Noise from ignition, refrigeration or power generating equipment interferes with the unit.	● Consult an experienced radio technician who can locate and suppress electrical noise at its source.

NOTES

The following conditions will cause the displayed channel to flash;

- Attempting to transmit on a receive only channel.
- When a signal on CH16 is received in Dual Watch mode.
- When a signal is received in an automatic scanning mode.
- When a signal on CH16 or Programmed Triple Watch channel is received in Triple Watch mode.

Channel Frequencies

■ **International Channels (unit; in MHz)**

CH	TX FREQ	RX FREQ	COMMENT
1	156.05	160.65	Public Correspondence, Port Operation
2	156.10	160.70	Public Correspondence, Port Operation
3	156.15	160.75	Public Correspondence, Port Operation
4	156.20	160.80	Public Correspondence, Port Operation
5	156.25	160.85	Public Correspondence, Port Operation
6	156.30	156.30	Inter Ship Safety
7	156.35	160.95	Public Correspondence, Port Operation
8	156.40	156.40	Commercial
9	156.45	156.45	Commercial, Non Commercial
10	156.50	156.50	Commercial
11	156.55	156.55	Commercial
12	156.60	156.60	Port Operation
13	156.65	156.65	Navigational
14	156.70	156.70	Port Operation
15	156.75	156.75	Environmental [Low]
16	156.80	156.80	Distress, Safety and Calling
17	156.85	156.85	[Low]
18	156.90	161.50	Commercial
19	156.95	161.55	Port Operation
20	157.00	161.60	Port Operation
21	157.05	161.65	Port Operation
22	157.10	161.70	Port Operation
23	157.15	161.75	Public Correspondence
24	157.20	161.80	Public Correspondence
25	157.25	161.85	Public Correspondence
26	157.30	161.90	Public Correspondence
27	157.35	161.95	Public Correspondence
28	157.40	162.00	Public Correspondence
60	156.025	160.625	Port Operation, Public Correspondence
61	156.075	160.675	Port Operation, Public Correspondence
62	156.125	160.725	Port Operation, Public Correspondence
63	156.175	160.775	Port Operation, Commercial
64	156.225	160.825	Port Operation, Public Correspondence
65	156.275	160.875	Port Operation, Public Correspondence
66	156.325	160.925	Port Operation, Public Correspondence
67	156.375	156.375	Commercial
68	156.425	156.425	Non Commercial
69	156.475	156.475	Non Commercial
70	156.525	156.525	Non Commercial
71	156.575	156.575	Non Commercial
72	156.625	156.625	Non Commercial
73	156.675	156.675	Port Operation
74	156.725	156.725	Port Operation
75			Guard
76			Guard
77	156.875	156.875	Commercial
78	156.925	161.525	Non Commercial
79	156.975	161.575	Port Operation
80	157.025	161.625	Port Operation
81	157.075	161.675	Port Operation
82	157.125	161.725	Port Operation, Public Correspondence
83	157.175	161.775	Public Correspondence
84	157.225	161.825	Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	162.025	Public Correspondence

LOW; 1W max

■ **USA Channels (unit; in MHz)**

CH	TX FREQ	RX FREQ	COMMENT
1	156.05	156.05	Port Operation, Commercial
3	156.15	156.15	Port Operation, Commercial
5	156.25	156.25	Port Operation
6	156.30	156.30	Inter Ship Safety
7	156.35	156.35	Commercial
8	156.40	156.40	Commercial (Inter Ship)
9	156.45	156.45	Commercial, Non Commercial
10	156.50	156.50	Commercial
11	156.55	156.55	Commercial
12	156.60	156.60	Port Operation
13	156.65	156.65	Navigational, Low
14	156.70	156.70	Port Operation
15		156.75	Environmental
16	156.80	156.80	Distress, Safety and Calling
17	156.85	156.85	State Control, Low
18	156.90	156.90	Commercial
19	156.95	156.95	Commercial
20	157.00	161.60	Port Operation
21	157.05	157.05	US Government Only
22	157.10	157.10	Coast Guard Liaison
23	157.15	157.15	US Government Only
24	157.20	161.80	Public Correspondence
25	157.25	161.85	Public Correspondence
26	157.30	161.90	Public Correspondence
27	157.35	161.95	Public Correspondence
28	157.40	162.00	Public Correspondence
63	156.175	156.175	Port Operation, Commercial
65	156.275	156.275	Port Operation
66	156.325	156.325	Port Operation
67	156.375	156.375	Commercial, Low
68	156.425	156.425	Non Commercial
69	156.475	156.475	Non Commercial
70	156.525	156.525	Non Commercial
71	156.575	156.575	Non Commercial
72	156.625	156.625	Non Commercial
73	156.675	156.675	Port Operation
74	156.725	156.725	Port Operation
75			Guard
76			Guard
77	156.875	156.875	Commercial
78	156.925	156.925	Non Commercial
79	156.975	156.975	Commercial
80	157.025	157.025	Commercial
81	157.075	157.075	US Government Only
82	157.125	157.125	US Government Only
83	157.175	157.175	US Government Only
84	157.225	161.825	Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	157.425	Commercial

LOW; 1W max

Channel Frequencies (cont.)

■ **Canada Channels (unit; in MHz)**

CH	TX FREQ	RX FREQ	COMMENT
1	156.05	160.65	Rail Way, West Coast Only
2	156.10	160.70	Rail Way, West Coast Only
3	156.15	160.75	Rail Way, West Coast Only
4	156.20	160.80	Rail Way, West Coast Only
5	156.25	160.85	Rail Way, West Coast Only
6	156.30	156.30	Inter Ship Safety
7	156.35	156.35	Commercial
8	156.40	156.40	Commercial
9	156.45	156.45	Commercial, Non Commercial
10	156.50	156.50	Commercial
11	156.55	156.55	Vessel Traffic Movement
12	156.60	156.60	Vessel Traffic Movement
13	156.65	156.65	Vessel Traffic Movement
14	156.70	156.70	Vessel Traffic Movement
15	156.75	156.75	Government Operations [Low]
16	156.80	156.80	Distress, Safety and Calling
17	156.85	156.85	Pilotage [Low]
18	156.90	156.90	Commercial
19	156.95	156.95	Canadian Coast Guard
20	157.00	161.60	Port Operation
21	157.05	157.05	Joint Canadian & U.S. Coast Guard
22	157.10	157.10	Joint Canadian & U.S. Coast Guard Liaison
23	157.15	161.75	Public Correspondence
24	157.20	161.80	Public Correspondence
25	157.25	161.85	Public Correspondence
26	157.30	161.90	Public Correspondence
27	157.35	161.95	Public Correspondence
28	157.40	162.00	Public Correspondence
61	156.075	156.075	Fish Industry
62	156.125	156.125	Fish Industry
65	156.275	156.275	Port Operation
66	156.325	156.325	Port Operation
67	156.375	156.375	Commercial and Non Commercial
68	156.425	156.425	Non Commercial (Recreational Craft Marinas Yacht Clubs)
69	156.475	156.475	Non Commercial
70	156.525	156.525	Non Commercial (Recreational Craft)
71	156.575	156.575	Non Commercial (Recreational Craft)
72	156.625	156.625	Commercial and Non Commercial
73	156.675	156.675	Commercial and Non Commercial
74	156.725	156.725	Vessel Traffic Movement
75			Guard
76			Guard
77	156.875	156.875	Pilotage
78	156.925	156.925	Commercial
79	156.975	156.975	Canadian Coast Guard
80	157.025	157.025	Commercial
81	157.075	157.075	Joint Canadian & U.S. Coast Guard Anti-Pollution
82	157.125	157.125	Canadian Coast Guard/U.S. Government Agencies
83	157.175	157.175	Canadian Coast Guard/U.S. Government Agencies
84	157.225	161.825	Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	162.025	Public Correspondence

LOW; 1W max

■ **Weather Channels (unit; in MHz)**

CH	TX FREQ	RX FREQ	COMMENT
WX1		162.55	Weather
WX2		162.40	Weather
WX3		162.475	Weather
WX4		162.425	Weather
WX5		162.45	Weather
WX6		162.50	Weather
WX7		162.525	Weather
WX8		161.65	Weather
WX9		161.775	Weather
WX10		163.275	Weather

Distress Communication Format

SPEAK SLOWLY, CLEARLY AND CALMLY

Make sure that your Marine VHF radio is on.

1 Press [CH16] (CH16)	
2 Press [PTT Switch]	Say: "MAYDAY - MAYDAY - MAYDAY."
	Say: "THIS IS (your boat name and call letters), (your boat name and call letters), (your boat name and call letters)."
	Say: "MAYDAY, (your boat name)."
	Tell: WHERE YOU ARE (What navigational aids or landmarks are near).
	STATE THE NATURE OR YOUR EMERGENCY.
	GIVE THE NUMBER OF PERSONS ABOARD AND THE CONDITION OF ANY INJURED.
	ESTIMATE THE PRESENT SEAWORTHINESS OF YOUR BOAT.
	BRIEFLY DESCRIBE YOUR BOAT: (provincial registration no.), (length) feet, (draft) feet, (type), (colour) hull, (colour) trim, (number) masts, (type; horsepower) power, (construction material). (anything else that you think will help rescuers to find you.)
	Say: "I WILL BE LISTENING ON CHANNEL 16."
	End message by saying: "THIS IS (Your boat name and call sign), OVER."
3 Release [PTT Switch]	Listen: someone should answer.

IF THEY DO NOT, REPEAT THE CALL BEGINNING AT ITEM 2. IF THERE IS STILL NO ANSWER, SWITCH TO ANOTHER CHANNEL AND BEGIN AGAIN.

REMEMBER... REMAIN CALM, SPEAK SLOWLY AND CLEARLY. DO NOT SHOUT INTO THE MICROPHONE, SPEAK IN A NORMAL SPEAKING VOICE.

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Central P.O.Box 288, Osaka 530-91, Japan

Printed in Japan

PQQX6020ZA S1089J0